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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,352	06/15/2001	Noboru Edagawa	45234 DBP/T360	8657

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EXAMINER	
PETKOVSEK, DANIEL J	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,352	EDAGAWA ET AL.	
	Examiner	Art Unit	
	Daniel J Petkovsek	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *amendment filed on March 20, 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,7,11-14,18-20 and 24-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13 and 26* is/are allowed.

6)☒ Claim(s) *1,5,7,11,12,14,18-20, 24 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *March 20, 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7 .
4) ☐ Interview Summary (PTO-413) Paper No(s) _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This office action is in response to the amendment filed on March 20, 2003. In accordance with the amendment, claims 2-4, 6, 8-10, 15-17, and 21-23 have been canceled. Claims 1, 5, 7, 11-14, 18-20, and 24-26 have been amended, and are the only remaining claims. The changes to the drawings have been acknowledged.

Information Disclosure Statement

1. The prior art documents submitted by Applicant in the Information Disclosure Statements filed on January 6, 2003, have been considered and made of record (note attached copy of forms PTO-1449).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5, 7, 11, 14, 18, 20, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ziari et al. U.S.P. No. 6,522,796.

Ziari et al. U.S.P. No. 6,522,796 teaches (ABS, Fig. 2, column 6 lines 1-44) a pumping light generator 200 comprising: two pumping light sources 202, a combiner 216 to orthogonally polarize the light sources, and a birefringent depolarizer 220 to reduce the degree of polarization of the light output. The depolarizer 220 is disposed to output each input pumping light at practically equal optical power to the other (column 7 lines 48-56).

The depolarizer 220 also comprises polarization dispersion longer than a coherence length of each pumping light source (column 9 lines 1-5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 12, 19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziari et al. U.S.P. No. 6,522,796.

Ziari et al. U.S.P. No. 6,522,796 teaches (ABS, Fig. 2, column 6 lines 1-44) a pumping light generator 200 comprising: two pumping light sources 202, a combiner 216 to orthogonally polarize the light sources, and a birefringent depolarizer 220 to reduce the degree of polarization of the light output. The depolarizer 220 is disposed to output each input pumping light at practically equal optical power to the other (column 7 lines 48-56). The depolarizer 220 also comprises polarization dispersion longer than a coherence length of each pumping light source (column 9 lines 1-5). Ziari et al. U.S.P. No. 6,522,796 does not explicitly teach that the birefringent medium is selected from the group consisting of rutile crystal or YVO4. Regarding claims 12, 19, and 25, although not explicitly disclosed by Ziari et al. '796, the properties claimed by Applicant are properties of birefringent materials that are well known in the art. Commonly known birefringent media include rutile crystal and YVO4. Any specific advantage of using well-known materials such as rutile crystal or YVO4 in this pumping light arrangement must be more clearly disclosed.

6. Claims 1, 5, 7, 11, 12, 14, 18-20, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. U.S.P. No. 4,784,450, and further in view of Jones et al. DE 3,626,714 A.

Jain et al. U.S.P. No. 4,784,450 teaches (Fig 3, column 9 line 60 through column 10 line 20) an apparatus for a tunable generation of wavelengths comprising: first 22 and second 20 optical input sources, prisms 40 and 42 that act as a combiner of the optical sources into an orthogonal state of polarization, and a birefringent optical waveguiding region 12 that reduces the degree of polarization of the combined light. The birefringent medium of the waveguide inherently controls the polarization dispersion of the output light. Jain et al. '450 does not explicitly teach that the birefringent medium comprises polarization dispersion longer than the coherence length of the output light from each pumping light source (claims 5, 11, 18, and 24).

Jones et al. DE '714 teaches (English ABS) a dispersion element for a pump source using polarized light in which the polarization dispersion is longer than the coherence length of the optical source. Jones et al DE '714 states that by having a polarization dispersion element having a dispersion exceeding the coherence length can be arranged for the purpose of reducing unwanted signals caused by interference between the sent/received optical signals.

Since Jain et al. '450 and Jones et al. DE '714 are both from the same field of endeavor, the purpose of reducing unwanted signals caused by interference by the use of a specific polarization dispersion element, as discussed by Jones et al. DE '714, would have been recognized in the pertinent art of Jain et al. '450. The fact that Jones et al. DE

'714 does not combine two pumping signals is moot, since the dispersion element nevertheless reduces interference.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dispersion element having the dispersion exceeding the coherence length of the source of Jones et al. DE '714 for the purpose of reducing unwanted signals caused by interference in a pumping light generator.

Jain et al. '450 does not explicitly disclose that the birefringent medium is disposed so as to output each input pumping light at practically equal optical power to the other (claims 1, 7, 14, and 20).

Although not explicitly stated by Jain et al. '450, it would have been obvious that if pumping sources 20 and 22 output light at practically equal optical powers to each other, that they would be polarized, and subsequently output from the birefringent medium 12 at essentially/practically equal optical power. It would have been obvious at the time the invention was made to a person having ordinary skill in the art that the pumping device of Jain et al. '450 could output each input pumping light at practically equal power.

If any specific components of the birefringent medium are necessary (and novel) for this organization of the depolarizer, they must be included in the claim or disclosure. Simply stating that the optical signals are output at practically equal optical power is a desired result. There is nothing in the disclosure/claims that fully states how this essentially/practically equal power output is specifically obtained from the depolarizing element, separating it from any well-known birefringent depolarizer.

Jain et al. '450 does not explicitly teach that the birefringent medium is selected from the group consisting of rutile crystal or YVO4. Regarding claims 12, 19, and 25, although not explicitly disclosed by Jain et al. '450, the properties claimed by Applicant are properties of birefringent materials that are well known in the art. Commonly known birefringent media include rutile crystal and YVO4. Any specific advantage of using well-known materials such as rutile crystal or YVO4 in this pumping light generator must be more clearly disclosed.

Allowable Subject Matter

7. Claims 13 and 26 are allowed. The relevant prior art does not teach or reasonably suggest that in a pumping light generator combining two sources, the degree-of-polarization reducer comprises 1st and 2nd birefringent mediums in each where polarization dispersion is longer than a coherence length of the output, further in which one polarization dispersion differs twice as much as the other, where the output from the two polarization axes comes at equivalent optical power.

Conclusion

Applicant's amendment has been fully considered, but in view of further consideration by Examiner and new art found, previously indicated allowable subject material has been withdrawn.

Claims related to a depolarizer disposed to output each input pumping light at practically equal optical power to the other (claims 1, 7, 14, and 20) have been rejected

under new art (Ziari et al. '796) and old art under 35 U.S.C. 103 (a) rejections (Jain et al. '450). Claims related to depolarizer disposed to comprise polarization dispersion longer than a coherence length of each pumping light source (claims 5, 11, 18, and 24) have been rejected under new art (Ziari et al. '796) and old art further in view of new art (Jain et al. '450 and further in view of Jones et al. DE '714).

Claims 13 and 26 have indicated as allowable over the relevant prior art. The changes to the drawings have been acknowledged.

Accordingly, this action has been made **NON-FINAL**, since new art has been used to make rejections under 35 U.S.C. 102 (e) and 35 U.S.C. 103 (a), as well as previously indicated allowable subject matter having been withdrawn. Rejections to the previously indicated allowable subject matter to 35 U.S.C. 103(a) have been fully addressed above.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of pumping light generators:

PTO-892 form references B-D.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.

Daniel Petkovsek
May 30, 2003